

L Number	Hits	Search Text	DB	Time stamp
4	15	hypervisor same (map\$4 translat\$3 modif\$7) same virtual\$3 same physical same address\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/22 09:54
5	31	((partition\$3 near4 manag\$5) ((operating adj system) near4 master) hypervisor) same (map\$4 translat\$3 modif\$7) same virtual\$3 same physical same address\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/22 10:22
7	47	((map\$4 assign\$3 associat\$3) same (resource hardware physical i/o page frame memor\$3 device storage) same (process logical\$2 virtual) same (partition\$3 divid\$3) same address\$3 same ( noncontiguous\$2 non-contiguous\$2 nonconsecutive\$2 non-consecutive\$2 disjoint\$3 dis-join\$3 ) ) ) and (translat\$3 address\$3 partition\$3 logical\$2 (operat\$3 adj2 system) virtual page frame real non-contiguous\$2 noncontiguous\$2 discontinuous\$2 dis-contiguous\$2 request\$3 allocat\$3 access\$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/22 11:40
8	45	((map\$4 assign\$3 associat\$3) same (resource hardware physical i/o page frame memor\$3 device storage) same (process logical\$2 virtual) same (partition\$3 divid\$3) same address\$3 same ( noncontiguous\$2 non-contiguous\$2 nonconsecutive\$2 non-consecutive\$2 disjoint\$3 dis-join\$3 ) ) ) and (translat\$3 address\$3 partition\$3 logical\$2 (operat\$3 adj2 system) virtual page frame real non-contiguous\$2 noncontiguous\$2 discontinuous\$2 dis-contiguous\$2 request\$3 allocat\$3 access\$3) ) not (((partition\$3 near4 manag\$5) ((operating adj system) near4 master) hypervisor) same (map\$4 translat\$3 modif\$7) same virtual\$3 same physical same address\$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/22 11:40
9	45	((map\$4 assign\$3 associat\$3) same (resource hardware physical i/o page frame memor\$3 device storage) same (process logical\$2 virtual) same (partition\$3 divid\$3) same address\$3 same ( noncontiguous\$2 non-contiguous\$2 nonconsecutive\$2 non-consecutive\$2 disjoint\$3 dis-join\$3 ) ) ) and (translat\$3 address\$3 partition\$3 logical\$2 (operat\$3 adj2 system) virtual page frame real non-contiguous\$2 noncontiguous\$2 discontinuous\$2 dis-contiguous\$2 request\$3 allocat\$3 access\$3) ) not (((partition\$3 near4 manag\$5) ((operating adj system) near4 master) hypervisor) same (map\$4 translat\$3 modif\$7) same virtual\$3 same physical same address\$3)) not (hypervisor same (map\$4 translat\$3 modif\$7) same virtual\$3 same physical same address\$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/22 11:41
-	941	((resource near4 manag\$5) (resource near4 allocat\$3) (resource near4 partition\$4))) and ((soft logical\$4 software) near4 partition\$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 09:47
-	167	((resource near4 manag\$5) (resource near4 allocat\$3) (resource near4 partition\$4))) and ((soft logical\$4 software) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 09:49
-	34	((resource near4 manag\$5) (resource near4 allocat\$3) (resource near4 partition\$4))) and ((soft logical\$4 software) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/22 14:52
-	32	((resource near4 manag\$5) (resource near4 allocat\$3) (resource near4 partition\$4))) and ((soft logical\$4 software) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical near4 resource) i/o memory) same (allocat\$3 reserv\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/23 08:54

-	49	(((((resource i/o memory) near4 manag\$5) ((resource i/o memory) near4 allocat\$3) ((resource i/o memory) near4 partition\$4))) and ((soft logical\$4 software user) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical hardware) near4 resource) i/o memory) same (allocat\$3 reserv\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/23 09:37
-	17	(((((resource i/o memory) near4 manag\$5) ((resource i/o memory) near4 allocat\$3) ((resource i/o memory) near4 partition\$4))) and ((soft logical\$4 software user) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical hardware) near4 resource) i/o memory) same (allocat\$3 reserv\$5)) ) not ((((((resource near4 manag\$5) (resource near4 allocat\$3) (resource near4 partition\$4))) and ((soft logical\$4 software) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical near4 resource) i/o memory) same (allocat\$3 reserv\$5)) )	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/23 08:59
-	32	(((((resource i/o memory) near4 manag\$5) ((resource i/o memory) near4 allocat\$3) ((resource i/o memory) near4 partition\$4))) and ((soft logical\$4 software user) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical hardware) near4 resource) i/o memory) same (allocat\$3 reserv\$5)) ) not ((((((resource i/o memory) near4 manag\$5) ((resource i/o memory) near4 allocat\$3) ((resource i/o memory) near4 partition\$4))) and ((soft logical\$4 software user) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical hardware) near4 resource) i/o memory) same (allocat\$3 reserv\$5)) ) not ((((((resource near4 manag\$5) (resource near4 allocat\$3) (resource near4 partition\$4))) and ((soft logical\$4 software) near4 partition\$4)) and ((address\$3 near4 translat\$3) and table and (os o/s (operating adj2 system)))) and ((modif\$5 chang\$3 edit\$3 updat\$3) same (address\$3 near3 translat\$3) same (access\$5))) and (((physical near4 resource) i/o memory) same (allocat\$3 reserv\$5)) )	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/23 10:41
-	181	((map\$4 same (resource hardware physical i/o cpu processor memory) same logical\$2 same partition\$3 same address\$3) and (os (operating adj2 system)) and (allocat\$3 reserv\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/23 13:32
-	98	((map\$4 same (resource hardware physical i/o cpu processor memory) same logical\$2 same partition\$3 same address\$3 same access\$5) and (os (operating adj2 system)) and (allocat\$3 reserv\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/09/23 13:34
-	42	((map\$4 same (resource hardware physical i/o cpu processor memory) same logical\$2 same partition\$3 same address\$3 same access\$5) and (os (operating adj2 system)) and (allocat\$3 reserv\$5))) and (((request\$3 access\$5) near5 (den\$3 refus\$3 grant\$3 permi\$5 allow\$3 authori\$6 error\$3 exception)) and table and translat\$3 and address\$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/21 10:56
-	350	((map\$4 assign\$3) same (resource hardware physical i/o cpu processor page frame memory) same (process logical\$2 virtual) same partition\$3 same address\$3 same (noncontiguous non-contiguous pattern specific differen\$2))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/21 11:02
-	24	((map\$4 assign\$3 associat\$3) same (resource hardware physical i/o cpu processor page frame memory) same (process logical\$2 virtual) same partition\$3 same address\$3 same ( noncontiguous non-contiguous differen\$2) same translat\$3 same (allocat\$3 reserv\$6))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/21 11:05


-	52	((map\$4 assign\$3 associat\$3) same (resource hardware physical i/o cpu processor page frame memory) same (process logical\$2 virtual) same partition\$3 same address\$3 same (rang\$3 noncontiguous non-contiguous pattern specific differen\$2) same translat\$3 same (allocat\$3 reserv\$6))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/04/21 11:24
-	45	((map\$4 assign\$3 associat\$3) same (resource hardware physical i/o page frame memor\$3 device storage) same (process logical\$2 virtual) same (partition\$3 divid\$3) same address\$3 same ( noncontiguous\$2 non-contiguous\$2 nonconsecutive\$2 non-consecutive\$2 disjoint\$3 dis-join\$3 ) ) ) and (translat\$3 address\$3 partition\$3 logical\$2 (operat\$3 adj2 system) virtual page frame real non-contiguous\$2 noncontiguous\$2 discontiguous\$2 dis-contiguous\$2 request\$3 allocat\$3 access\$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/22 11:39
-	116	(logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 15:38
-	2	((logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3) same ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 15:41
-	7	((logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3) and ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 15:46
-	5	((logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3) and ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3)) not (((logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3) same ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 15:42
-	6	((logical\$2 (operating adj system)) with (control\$4 manag\$4) with partition\$3) same ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 15:47
-	20	((logical\$2 (operating adj system)) with (control\$4 manag\$4) with partition\$3) and ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 16:36
-	13	((logical\$2 (operating adj system)) with (control\$4 manag\$4) with partition\$3) and ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3)) not (((logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3) same ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3))) not (((logical\$2) with (operating adj system) with (control\$4 manag\$4) with partition\$3) and ((map\$4 associat\$3) with virtual with (address\$3) with (logical\$2 partition\$3)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 15:47
-	78	(logical\$2 with (partition\$3 divid\$3) with (operating adj system)) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 16:55
-	117	(logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 17:22

-	39	((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 16:56
-	146	partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 17:24
-	567	(partition\$3 memor\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 17:41
-	36	(partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:39
-	455	((partition\$3 memor\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/20 17:42
-	419	((partition\$3 memor\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) not (partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 08:53
-	422	((partition\$3 memor\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) not (partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 08:54
-	125	((partition\$3 memor\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) not (partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) and (((allocat\$3 access\$7) with (memor\$3 resource)) same ((map\$4 translat\$3 associat\$3) with (address\$3 memor\$3 resource)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 08:58

-	69	(((partition\$3 memor\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) not (partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) and (((allocat\$3 access\$7) with (memor\$3 resource)) same ((map\$4 translat\$3 associat\$3) with (address\$3 virtual physical logical\$2 partition\$3)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 09:09
-	0	(partition\$3 same (virtual\$3 near\$3 address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) not ((logical\$2 with (partition\$3 divid\$3) with (operating adj system)) and ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:41
-	0	(partition\$3 same (virtual\$3 with address\$3) same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:41
-	149	(partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:42
-	2	((partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) and (hypervisor same (virtual\$3 with (address\$3 page memor\$3) with (map\$4 translat\$3) with (real physical\$3) with (memor\$3 address\$3 page)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:46
-	18	((partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) and (hypervisor and (virtual\$3 with (address\$3 page memor\$3) with (map\$4 translat\$3) with (real physical\$3) with (memor\$3 address\$3 page)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:46
-	16	(((partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) and (hypervisor and (virtual\$3 with (address\$3 page memor\$3) with (map\$4 translat\$3) with (real physical\$3) with (memor\$3 address\$3 page)))) not (((partition\$3 same ((run\$4 execut\$3) with (operating adj system) with (multiple plurality many) with (active\$2 concurrent\$2 simultaneous\$2 parallel\$5))) ) and (hypervisor same (virtual\$3 with (address\$3 page memor\$3) with (map\$4 translat\$3) with (real physical\$3) with (memor\$3 address\$3 page))))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2004/10/21 16:46

45 A case for user-level dynamic page migration

Dimitrios S. Nikolopoulos, Theodore S. Papatheodorou, Constantine D. Polychronopoulos, Jesús Labarta, Eduard Ayala  
May 2000 **Proceedings of the 14th international conference on Supercomputing**

Full text available:  pdf(1.33 MB)

Additional Information

This paper presents user-level dynamic page migration, a runtime technique which transparently enables parallel programs to exploit the iterative nature of parallel programs and information available to the program both at compile time and at run time.

46 Multigrain shared memory

Donald Yeung, John Kubiawicz, Anant Agarwal  
May 2000 **ACM Transactions on Computer Systems (TOCS)**, Volume 18 Issue 2

Full text available:  pdf(359.18 KB)

Additional Information

Parallel workstations, each comprising tens of processors based on shared memory, promise cost-effective scalable larger shared-memory systems. We call these systems Distributed Shared-memory MultiProcessors (DSMPs). This paper describes the design and implementation of a shared-memory multiprocessor system.

**Keywords:** distributed memory, symmetric multiprocessors, system of systems

47 Piranha: a scalable architecture based on single-chip multiprocessing

Luiz André Barroso, Kourosh Gharachorloo, Robert McNamara, Andreas Nowatzky, Shaz Qadeer, Barton Sano, Scott M. R. Steel  
May 2000 **ACM SIGARCH Computer Architecture News , Proceedings of the 27th annual ACM SIGARCH computer architecture symposium**

Full text available:  pdf(191.10 KB)

Additional Information

The microprocessor industry is currently struggling with higher development costs and longer design times that inhibit the development of new applications, such as on-line transaction processing (OLTP), which suffer from large memory stall times and exhibit poor scalability.

48 Session summaries from the 17th symposium on operating systems principle (SOSP'99)

Jay Lepreau, Eric Eide  
April 2000 **ACM SIGOPS Operating Systems Review**, Volume 34 Issue 2

Full text available:  pdf(3.15 MB) Additional Information: [full citation](#), [index terms](#)

49 System-level power optimization: techniques and tools

Luca Benini, Giovanni de Micheli  
April 2000 **ACM Transactions on Design Automation of Electronic Systems (TODAES)**, Volume 5 Issue 2


Full text available:  pdf(335.22 KB)

Additional Information

This tutorial surveys design methods for energy-efficient system-level design. We consider electronic systems composed of multiple processing units, and we review methods of reducing their energy consumption. We also study models for analyzing the energy consumption of such systems.

50 Borrowed-virtual-time (BVT) scheduling: supporting latency-sensitive threads in a general-purpose scheduler

Kenneth J. Duda, David R. Cheriton  
December 1999 **ACM SIGOPS Operating Systems Review , Proceedings of the seventeenth ACM symposium on operating systems principles**


Full text available:  pdf(1.61 MB)

Additional Information

Systems need to run a larger and more diverse set of applications, from real-time to interactive to batch, on uni-processor hardware. This paper describes a scheduling algorithm that provides applicability to general-purpose systems. In this paper, we present *Borrowed-Virtual-Time (BVT) Scheduling*, which supports latency-sensitive threads in a general-purpose scheduler.

51 Cellular Disco: resource management using virtual clusters on shared-memory multiprocessors

Kinshuk Govil, Dan Teodosiu, Yongqiang Huang, Mendel Rosenblum  
December 1999 **ACM SIGOPS Operating Systems Review , Proceedings of the seventeenth ACM symposium on operating systems principles**

Full text available:  pdf(1.93 MB)

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#### 1 [Distributed operating systems](#)

Andrew S. Tanenbaum, Robbert Van Renesse

December 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 4

Full text available: pdf(5.49 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

Distributed operating systems have many aspects in common with centralized ones, but they also differ in certain distributed operating systems, and especially to current university research about them. After a discussion of wh distinguished from a computer network, various key design issues are discussed. Then several examples of curre

#### 2 [Compiling nested data-parallel programs for shared-memory multiprocessors](#)

Siddhartha Chatterjee

July 1993 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 15 Issue 3

Full text available: pdf(4.17 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

**Keywords:** compilers, data parallelism, shared-memory multiprocessors

#### 3 [Experience Using Multiprocessor Systems—A Status Report](#)

Anita K. Jones, Peter Schwarz

June 1980 **ACM Computing Surveys (CSUR)**, Volume 12 Issue 2

Full text available: pdf(4.48 MB)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 4 [Third Generation Computer Systems](#)

Peter J. Denning

December 1971 **ACM Computing Surveys (CSUR)**, Volume 3 Issue 4


Full text available: pdf(3.52 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [ir](#)

The common features of third generation operating systems are surveyed from a general view, with emphasis or for a "theory" of operating systems. Properties of specific systems are not discussed except where examples are stressed, the nontechnical aspects mentioned only briefly. A perfunctory knowledge of third generation systems

#### 5 [Parallel logic simulation of VLSI systems](#)

Mary L. Bailey, Jack V. Briner, Roger D. Chamberlain  
September 1994 **ACM Computing Surveys (CSUR)**, Volume 26 Issue 3

Full text available:  pdf(3.74 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

Fast, efficient logic simulators are an essential tool in modern VLSI system design. Logic simulation is used extensively in VLSI systems grow in size, the execution time required by simulation is becoming more and more significant. Fast logic simulation, speeding time to market while ensuring more thorough system design testing. One approach to this problem is to use a fast logic simulator.

**Keywords:** circuit structure, parallel architecture, parallelism, partitioning, synchronization algorithm, timing graph

6

## External memory algorithms and data structures: dealing with **massive data**

Jeffrey Scott Vitter  
June 2001 **ACM Computing Surveys (CSUR)**, Volume 33 Issue 2

Full text available:  pdf(828.45 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

Data sets in large applications are often too massive to fit completely inside the computer's internal memory. The fast internal memory and slower external memory (such as disks) can be a major performance bottleneck. In this paper, we analyze external memory (or EM) algorithms and data structures, where the goal is to exploit locality in order to reduce the number of disk accesses.

**Keywords:** B-tree, I/O, batched, block, disk, dynamic, extendible hashing, external memory, hierarchical memory, online, out-of-core, secondary storage, sorting

## 7 A structural view of the Cedar programming environment

Daniel C. Swinehart, Polle T. Zellweger, Richard J. Beach, Robert B. Hagmann  
August 1986 **ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 8 Issue 4


Full text available:  pdf(6.32 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

This paper presents an overview of the Cedar programming environment, focusing on its overall structure—that is, how it is organized. Cedar supports the development of programs written in a single programming language, also called Cedar, for programmers whose activities include experimental programming and the development of prototype software systems.

## 8 The NYU Ultracomputer—designing a MIMD, shared-memory parallel machine (Extended Abstract)

Allan Gottlieb, Ralph Grishman, Clyde P. Kruskal, Kevin P. McAuliffe, Larry Rudolph, Marc Snir  
April 1982 **Proceedings of the 9th annual symposium on Computer Architecture**


Full text available:  pdf(1.36 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

We present the design for the NYU Ultracomputer, a shared-memory MIMD parallel machine composed of thousands of processors. It features an enhanced message switching network with the geometry of an Omega-network to approximate the ideal behavior of a hypercube. We implement efficiently the important fetch-and-add synchronization primitive. We outline the hardware that was designed in 1990.

## 9 Fast detection of communication patterns in distributed executions

Thomas Kunz, Michiel F. H. Seuren  
November 1997 **Proceedings of the 1997 conference of the Centre for Advanced Studies on Collaborative Computing**

Full text available:  pdf(4.21 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index term](#)

Understanding distributed applications is a tedious and difficult task. Visualizations based on process-time diagrams can help in the execution of the application. The visualization tool we use is Poet, an event tracer developed at the University of Amsterdam. It does not provide the user with the desired overview of the application. In our experience, such tools display results in a way that is not helpful.


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## Technical reports



SIGACT News Staff

January 1980 **ACM SIGACT News**, Volume 12 Issue 1

Full text available:  pdf(5.28 MB)


Additional Information: [full citation](#)

11 Parallel execution of prolog programs: a survey

Gopal Gupta, Enrico Pontelli, Khayri A.M. Ali, Mats Carlsson, Manuel V. Hermenegildo

July 2001

**ACM Transactions on Programming Languages and Systems (TOPLAS)**, Volume 23 Issue 4

Full text available:  pdf(1.85 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

Since the early days of logic programming, researchers in the field realized the potential for exploitation of parallel high-level nature, the presence of nondeterminism, and their referential transparency, among other characteristics obtaining speedups through parallel execution. At the same time, the fact that the typical applications of logic programming


**Keywords:** Automatic parallelization, constraint programming, logic programming, parallelism, prolog

12 On randomization in sequential and distributed algorithms

Rajiv Gupta, Scott A. Smolka, Shaji Bhaskar

March 1994

**ACM Computing Surveys (CSUR)**, Volume 26 Issue 1

Full text available:  pdf(8.01 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

Probabilistic, or randomized, algorithms are fast becoming as commonplace as conventional deterministic algorithms widely used in the design of randomized algorithms. These techniques are illustrated using 12 randomized algorithms of applications, including: primality testing (a classical problem in number theory), interactive probabilistic


**Keywords:** Byzantine agreement, CSP, analysis of algorithms, computational complexity, dining philosophers problem, interactive probabilistic proof systems, leader election, message routing, nearest-neighbors problem, perfect hashing or probabilistic algorithms, randomized quicksort, sequential algorithms, transitive tournaments, universal hashing

13 Highly available systems for database applications

Won Kim

March 1984

**ACM Computing Surveys (CSUR)**, Volume 16 Issue 1

Full text available:  pdf(2.43 MB)


Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

As users entrust more and more of their applications to computer systems, the need for systems that are continually greater. This paper presents a survey and analysis of representative architectures and techniques that have been used in database applications. It then proposes a design of a distributed software subsystem that can serve as a unified

14 The NYU ultracomputer—designing a MIMD, shared-memory parallel machine

Allan Gottlieb, Ralph Grishman, Clyde P. Kruskal, Kevin P. McAuliffe, Larry Rudolph, Marc Snir

August 1998 **25 years of the international symposia on Computer architecture (selected papers)**

Full text available:  pdf(1.74 MB)

Additional Information: [full citation](#), [references](#), [index terms](#)

15 Design and evaluation of a commit-based continuous consistency model for replicated services

Haifeng Yu, Amin Vahdat

August 2002

**ACM Transactions on Computer Systems (TOCS)**, Volume 20 Issue 3

Full text available:  pdf(400.85 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [in](#)

The tradeoffs between consistency, performance, and availability are well understood. Traditionally, however, designers have chosen from either strong consistency guarantees or none at all. This paper explores the semantic space between traditional replicated services. We argue that an important class of applications can tolerate relaxed consistency, but benefit from bounded consistency.



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#### 41 [Dynamic analysis of security protocols](#)

Alec Yasinsac

February 2001 **Proceedings of the 2000 workshop on New security paradigms**

Full text available: [pdf\(871.04 KB\)](#)

Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

#### 42 [Coarse grain reconfigurable architecture \(embedded tutorial\)](#)

Reiner Hartenstein

January 2001

**Proceedings of the 2001 conference on Asia South Pacific design automation**

Full text available: [pdf\(167.05 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [ref](#)

The paper gives a brief survey over a decade of R&D on coarse grain reconfigurable hardware and related compi

#### 43 [Process migration](#)

September 2000

**ACM Computing Surveys (CSUR)**, Volume 32 Issue 3

Full text available: [pdf\(1.24 MB\)](#)

Additional Inf

Process migration is the act of transferring a process between two machines. It enables dynamic load distribution increasing deployment of distributed systems in general, and distributed operating systems in particular, process

**Keywords:** distributed operating systems, distributed systems, load distribution, process migration

#### 44 [Cellular disco. resource management using virtual clusters on shared-memory multiprocessors](#)

Kinshuk Govil, Dan Teodosiu, Yongqiang Huang, Mendel Rosenblum

August 2000

**ACM Transactions on Computer Systems (TOCS)**, Volume 18 Issue 3

Full text available: [pdf\(287.05 KB\)](#)

Additional Inf

Despite the fact that large-scale shared-memory multiprocessors have been commercially available for several y recently proposed approach, called Disco, substantially reduces this development cost by using a virtual machine

**Keywords:** fault containment, resource managment, scalable multiprocessors, virtual machines